United States
Environmental Protection
Agency

Environmental Monitoring
Systems Laboratory
P.O. Box 15027
Las Vegas NV 89114

TS-PIC-82068
November 1982

Research and Development

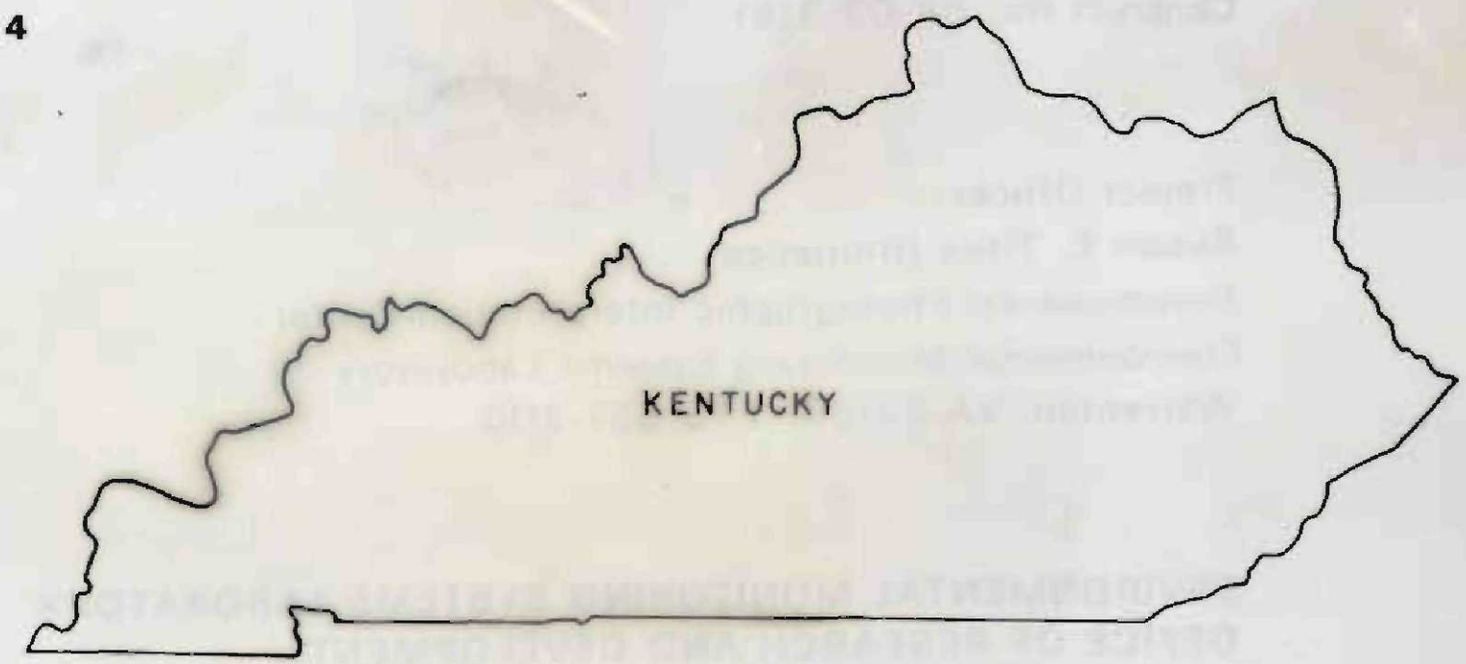
EPA

Lee's Lane Landfill
Louisville, Kentucky

prepared for

EPA Region 4

and OERR



Lee's Lane Landfill
Louisville, Kentucky

TS-PIC-82068
November 1982

by

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Contract No. 68-03-3161

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Warrenton, VA 22186, FTS 557-3110

ENVIRONMENTAL MONITORING SYSTEMS LABORATORY
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
LAS VEGAS, NEVADA 89114

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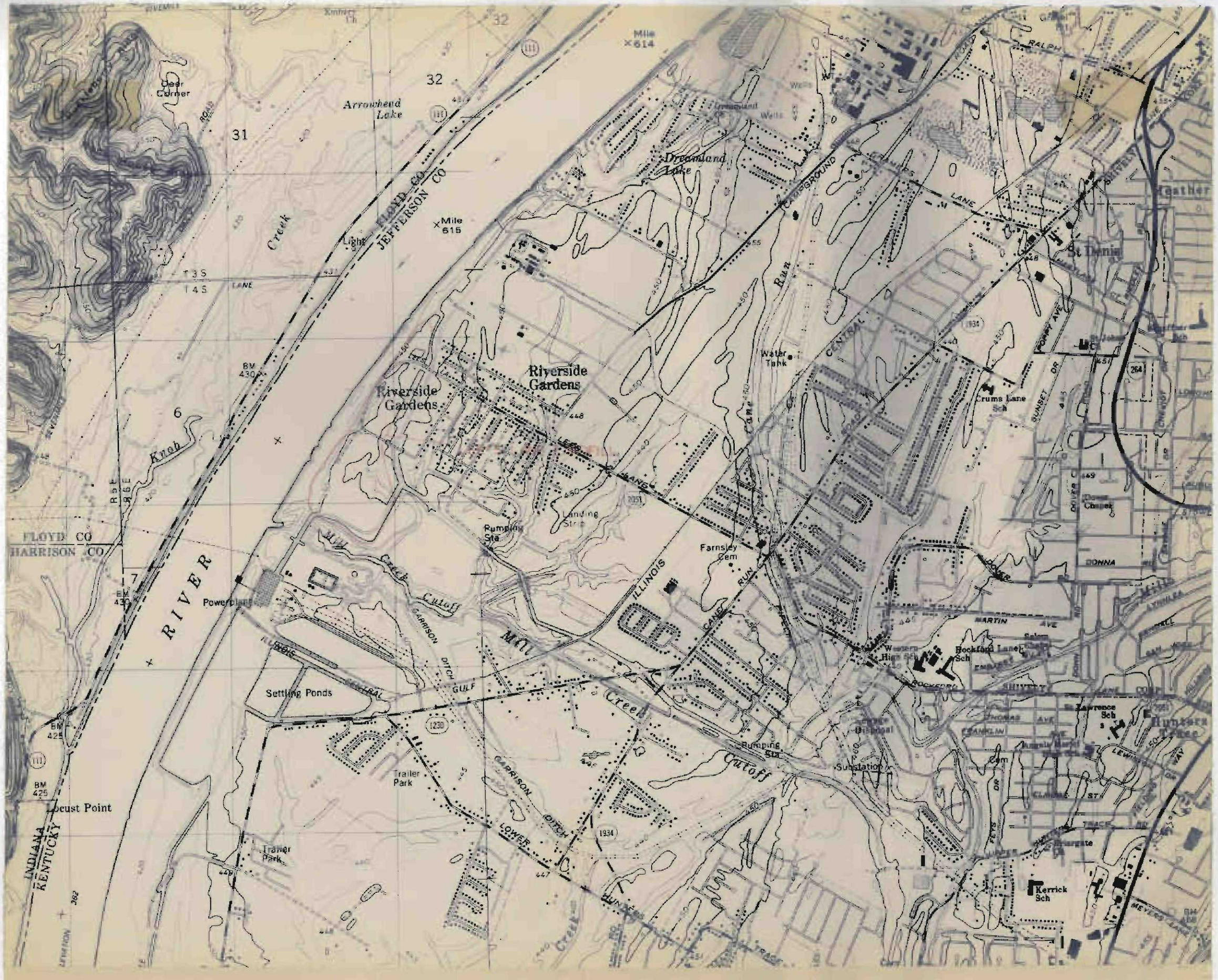
INTRODUCTION

A detailed historical site analysis of the Lee's Lane Landfill was conducted by the Environmental Photographic Interpretation Center (EPIC) to support an ongoing site investigation being conducted by Region 4. Lee's Lane Landfill is located on the west side of Louisville, Kentucky (adjacent to the Ohio River) and reportedly holds thousands of tons of hazardous chemical wastes. The presence of these wastes (dumped after the second World War), coupled with the generation of methane gas, could pose a significant threat to surrounding residential areas and the natural environment.

Historical black and white (1955, 1959, 1971) and color (1979) imagery used in this study was acquired from the United States Geological Survey (USGS) and the United States Environmental Protection Agency (EPA), respectively. Discussion of the significant changes in size, scope and types of activity being conducted within the landfill accompanies each of the four photo enlargements used in this report.



LEE'S LANE LANDFILL LOCATION DIAGRAM

Land Use/Drainage Surveys

March 3, 1971

This photo enlargement and its accompanying overlays show the various types of land use and drainage patterns surrounding the landfill site. The land use classification system used in this study was adopted from a United States Department of Interior publication[1] on land use identification using remotely sensed data. Minor modifications of the system were required to provide an accurate representation of land usage in the area.

The drainage survey denotes all detectable drainage and water body features in the vicinity of the landfill. Two small drainage channels flowing directly through or from the landfill have been detected and annotated on the overlay. The first channel appears to flow across the site and into the Ohio River. The second drainage course (a natural channel located in the southeast portion of the site) flows from the perimeter of the landfill into Mill Creek Cutoff. No detectable evidence indicating the presence of waterborne pollutants was noted in or around either of these drainage channels.

Land Use Designations

11	Residential
12	Commercial
124	Schools
125	Religious Centers
13	Industrial
142	Railroad Yards
144	Airfields
173	Dumps & Landfills
176	Levees
177	Auto Junkyard
21	Pasture and Cropland
22	Orchards and Groves
23	Livestock Operations
24	Farmsteads and Other Agriculture
32	Undeveloped Lands (Shrub and Brush Lands)
41	Deciduous Woodlands
51	Rivers and Streams
52	Lakes and Ponds
562	Retention Basins and Lagoons
75	Extraction Activities
761	Future Residential Lands

LEGEND

T - TANK
SL - STANDING LIQUID
EX - EXCAVATION
) (- CULVERT
- EMBANKMENT
- PIPELINE
- ACCESS ROAD
- LEVEE
- DRAINAGE

[1]U.S. Department of Interior, 1976, A Land Use and Land Cover Classification System for Use With Remote Sensor Data, Geological Survey Professional Paper 964.

MARCH 3, 1971 LAND USE SURVEY APPROX. SCALE 1:12,700

Lee's Lane Landfill

February 15, 1955

A large, well-established auto junkyard occupies most of the Lee's Lane Site in 1955. Monoscopic photo analysis does not reveal any evidence indicating suspicious materials or activities are being handled or conducted within the junkyard itself. A substantial quantity of debris and refuse material, however, has been located on a narrow strip of land lying south and east of the yard. This material has a highly mottled and light-toned appearance. The composition of this material cannot be determined from the photo.

Drainage in the immediate vicinity of the Lee's Lane Site is restricted to a system of natural and man-made drainage channels running in and around the site. A large linear channel, paralleling the adjacent flood control levee, appears to collect runoff from the surrounding acreage and channel it westward to the Ohio River. A second channel, bisecting the Lee's Lane Site, flows westward until it joins a natural drainage course which runs through a wooded depression and into the Ohio River. In later years this depression becomes a large waste disposal and fill site.

LEGEND

T - TANK
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LEE'S LANE LANDFILL FEBRUARY 15, 1955 APPROX. SCALE 1:8,000

Lee's Lane Landfill

April 4, 1959

Recent landfilling and disposal activities are clearly visible west of the auto junkyard. Most of the materials located in this area have a mottled, light-toned appearance characteristic of municipal wastes and recently deposited fill soil. The actual composition of these materials cannot be determined from the photo.

Access to this new landfill area appears to be limited to an ill-defined access road leading from Lee's Lane through the center of the disposal area. Additional access from the junkyard has also been detected. A lone vehicle, located near the center of the landfill, has also been identified in this area.

Residual quantities of debris and refuse materials located south of the auto junkyard (first detected in 1955) are still evident in 1959. Most of this material appears to have been removed, leaving only the extreme southern portion of the disposal area untouched. No new deposits of debris or refuse material have been identified in this area.

Disposal activity has greatly altered the drainage pattern in the immediate vicinity of the site. Landfilling activity in the northern portion of the wooded depression appears to have blocked the direction of drainage flow shown on the 1955 photograph. The drainage system now appears to flow northward alongside the drainage that parallels the flood control levee. This channel, which has recently been cleared or improved (as evidenced by its highly reflective, light-toned appearance), does not appear to drain into the Ohio River.

A significant decrease in the number of junked autos on site suggests that auto disposal and salvage activities are being curtailed. Complete termination of such activity occurs by 1971.

LEGEND

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LEE'S LANE LANDFILL APRIL 4, 1959 APPROX. SCALE 1:8,100

Lee's Lane Landfill

March 30, 1971

Significant disposal and extraction activity has greatly altered the size and appearance of the site since 1959. Large fill areas and extraction activity (probably sand and gravel oriented) now appear in the southern portion of the landfill. Ongoing disposal activity occurs at the southeastern portion of the site (adjacent to the excavation). The auto junkyard previously located in the northern portion of the site has been removed. Several structures, vehicle parking and a small extraction pit now appear to be the only significant features in this portion of the landfill.

The on-site drainage channel once again appears to flow southward into the Ohio River. The portion of the channel that crosses the site is located further south than its 1955 counterpart. An additional natural drainage channel now flows from the southeastern flank of the landfill into Mill Creek Cutoff. This channel's origin is located near the current active disposal site.

An additional outlying excavation appears along the banks of the Ohio River southwest of the landfill; several access roads connect this to the Lee's Lane Site. No significant features or activities were noted in this area.

Three large bodies of standing liquid (SL) appear in the central and southern portions of the landfill. These bodies of liquid were probably formed by precipitation and localized runoff and are not suspected indicators of leachate collection.

LEGEND

T - TANK
SL - STANDING LIQUID
EX - EXCAVATION
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- DRAINAGE

LEE'S LANE LANDFILL MARCH 30, 1971 APPROX. SCALE 1:8,500

Lee's Lane Landfill

June 15, 1979

This color photo of the landfill shows the site to be inactive and revegetating. The surface of the landfill appears highly pitted and ungraded and contains numerous ground scars and bodies of standing liquid (SL). These features, which appear primarily in the southern portion of the site, do not appear to denote any particular hazard. One notable exception, however, is a body of standing liquid located near the center of the site. A possible pipeline (annotated on the photo) appears to run from this body of liquid towards the Ohio River. The terminus of this possible pipeline could not be located at the bank of the river.

Small deposits of municipal (household) waste, concrete culverts and additional debris have been detected along the northern and western flanks of the landfill. These deposits appear to be remnants of historic as well as recent dumping activity. No detectable hazard was associated with these deposits.

The drainage pattern formed in the vicinity of the landfill appears little changed from its past configuration. Several small drainage channels have been detected within the landfill; however, these appear to be very localized and intermittent in nature.

LEGEND

T - TANK
SL - STANDING LIQUID
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) (- CULVERT
- EMBANKMENT
- PIPELINE
- ACCESS ROAD
- LEVEE
- DRAINAGE

LEE'S LANE LANDFILL JUNE 15, 1979 APPROX. SCALE 1:6,000

Film Bibliography

Location Diagram: Lanesville and Louisville West, Kentucky
7.5 minute Quadrangles

Photo Enlargements:

DATE	AGENCY	MISSION CODE	EPA-EPIC FRAME#
February 15, 1955	USGS	VHZ	1066
April 4, 1959	USGS	VWJ	1151
March 30, 1971	USGS	VCRI	1395
June 15, 1979	EPA-EPIC	79-145	589